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# Student Nurses Experiences of Clinical Placements in a Periopera- tive Environment: A Descriptive Lit- erature Review

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<p><b>Background:</b> Nursing is a profession that demands numerous domains of learning such as psychomotor, affective, and cognitive knowledge. Study findings revealed that there is a difference between the content of the theoretical education and the clinical practices since students identified a lack of evidence-based practice.</p> <p><b>Objectives:</b> This review aimed to provide new knowledge base on research for nursing clinical instructors to enhance clinical teaching methods in perioperative environment.</p> <p><b>Design:</b> Descriptive literature review that was accomplished through database searches from Pubmed and Cinahl.</p> <p><b>Data Sources:</b> Literature was searched within Pubmed/ MEDLINE and CINAHL and seven qualitative studies, one quality improvement study, one quantitative cross-sectional study, and one mixed-methods design were reviewed. The articles were published from 2015-2022.</p> <p><b>Review Methods:</b> JBI critical appraisal checklist, JuFo classification and QI-MQCS instrument was used for quality assessment. Literature summary tables were developed for data extraction and inductive content analysis was executed from the 10 selected studies from the database search consequently were arranged into two main categories and 14 generic categories.</p> <p><b>Results:</b> The main results revealed that student nurses' experiences positive and negative clinical placement experiences in perioperative nursing environment. The positive clinical placement experiences in perioperative environment included eight generic categories. However, negative clinical placement experiences in perioperative nursing environment included six generic categories.</p> <p><b>Conclusion:</b> Student nurses' experiences both positive and negative clinical placement experiences and most of the student nurses' experiences positive clinical placement experiences during clinical placements in a perioperative environment. A further recommendation from this literature review is to research how clinical instructors and OR team can avoid negative experiences of student nurses during clinical placements in the perioperative environment.</p>	
Key Words	experiences, clinical placements, perioperative nursing, learning, and perceptions

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## 1 Introduction

Nursing is a profession that demands numerous domains of learning such as psychomotor, affective, and cognitive knowledge. For this reason, it is essential to apply advance practices in nursing education. (Dogu, Karadas and Eskin Bacaksiz 2022:2107). Besides, the most significant period in student nurses' development of professionalism occurs during training in clinical placements when students acquire knowledge and skills that separate nurses as professional healthcare providers from civilians. (Rudberg et al., 2022:1.) Additionally, clinical learning environment is a key place for nursing and an essential part of nursing education program, considering half of the nursing curriculum; because in these circumstances, nursing students can merge and apply the comprehensive theories learned in the university. (Norouzi and Imani 2021:100).

According to the study of Van Den Dungen (2021:4), student nurse is an individual who is presently commencing a Bachelor of Nursing or Master of Nursing or Nursing Science degree at a university and is taking part in a clinical practice as part of the curriculum. Recognize as taking part into professional practice student nurse. In country such as Finland, studying the degree Bachelor of Health Care in Nursing at Metropolia University of Applied Sciences (2020) located in Helsinki, this study consists roughly one third of the nursing studies comprises of clinical practice. Which predominantly happen in different care and operating environment in the health care and social services sector. In every term, there are various clinical placement courses. Correspondingly, consider that students may perform clinical practice in many settings in three different shifts.

In the study of Rudberg et al. (2022:1), it was found that students became theoretically prepared at the university and obtained clinical skills through practice during clinical placements. Nursing students' concentration went from learning medical technology to a more holistic approach. Study findings revealed that there is a difference between the content of the theoretical education and the clinical practices since students identified a lack of evidence-based practice. An established theoretical background before entering clinical practices offers nursing students opportunities for contemplating on evidence-based practice and therefore application in the clinical placements such as perioperative environment.

Due to worldwide shortage of nurses, the field of perioperative nursing is encountering manpower dilemma. According to the report of World Health Organization (WHO) in collaboration

with the International Council of Nurses (ICN) and Nursing Now (2020), discloses at present, that there will be just under 28 million nurses globally. In the middle of 2013 and 2018, figures revealed that nursing profession increased by 4.7 million. Nevertheless, this yet leave a worldwide shortage of 5.9 million. There are imbalances with regards to ratio of nurses entering the manpower in comparison to nurses departing or reaching retirement age. To avoid the global shortfall, based on the report estimation those countries experiencing manpower shortages in nursing profession must augment the quantity of nursing graduates by approximately 8% per annum, together with enhanced capability to be employed and to remained working in the health care system. (WHO 2022). Moreover, in the field of perioperative nursing the amount needed in orienting and training of perioperative nurses is significantly expensive. Besides, it is important to take into consideration the turnover rates in the first year from graduation. To deal with these problems in the field of perioperative care, few nursing schools collaborated with local medical hospitals to construct a precepted clinical immersion program that designed to train senior nursing students in perioperative environment. Thereafter, students were employed after graduation, and this process is cost effective for orienting new hired nurses that is beneficial to the hospital as well as to the perioperative nursing field. The partnership between healthcare and academic managers is one way of addressing perioperative care manpower catastrophe. (Chappy et al., 2016: 104.e1).

The aim of this study is to provide new knowledge base on research for nursing clinical instructors to enhance clinical teaching methods in perioperative environment. The purpose of this descriptive literature review is to describe student nurses' experiences during the time of clinical placements in perioperative nursing environment. Findings of the study may provide valuable insights for educators and clinical nurses and may assist in the development of effective perioperative experiences for nursing students. In addition, this study may contribute to the acquisition of critical skills essential to enhance learning and ultimately, clinical practice.

## **2 Background and key terms**

### **2.1 Key terms**

According to Merriam-Webster dictionary (2023), key terms define as an essential term extracted from a title, document or article that is applied specifically in indexing the content of an article, thesis, scientific paper, and research. The key terms utilized in this thesis work are *experiences, clinical placements, perioperative nursing, learning, and perceptions*.

Perioperative nursing is a specialty that attends to patients who will undergo surgical operations or other invasive procedures and diagnostics. The surgical experience consists of three phases which includes preoperative (before surgery), intraoperative (during surgery), and postoperative (after surgery). Moreover, perioperative covers all three phases, and the perioperative nurses deliver nursing care and expertise during the whole patient care pathway from preoperative up to postoperative phase. (IFPN 2020).

The education or learning required to be able to perform the role of a perioperative nurse, is mandatory or must be a registered nurse. Additionally, education for a registered nurse may comprise of a four-year university-based education program that led up to Bachelor of Science Degree in Nursing (BSN), a two- or three- year diploma program from a hospital institution or a two-year associate degree in nursing (ADN) from a junior or community college which only offers a more narrowed scope of practice. (AORN 2020).

Included in the curriculum of Bachelor of Health Care, Degree Program in Nursing of Metropolia University of Applied Sciences (2023) is the implementation of Surgical and Perioperative Nursing (5 op) with five corresponding credits. Regarding the objectives of the implementation and part of it target that at the end of the implementation, the students can plan, execute, and assess perioperative and surgical nursing in various professional workgroups in diverse operating settings. Besides, students will be able to plan, perform and assess patients who will undergo anesthesia and surgery according to evidence-based practice of nursing care alongside clinical instructors together with various professional workgroups. Moreover, a part of the implementation content contains the surgical and perioperative nursing process, clinical pathways of patients in need of surgery, and nursing procedures related to care of surgical patients such as post-operative wound care and acute pain treatment. (Metropolia 2023).

Students apply the knowledge and skills learned in the classroom to the OR during a required hour in the clinical placement. Usually required minimum clinical commitment is 210-hours. (Helzer Doroh & Monahan 2016). The duration of operating theatre clinical practice depends on the institution as well as the regulation of the school.

Entering clinical environment like perioperative environment for a clinical placement, student nurses encounter many obstacles. It is a universal challenge worldwide that nursing students must learn to live with. Recognizing nursing students' experiences during clinical placements is vital to acquire new knowledge and solutions to decrease challenges that will eventually

maximize student learning experiences. A clinical training environment is a mixture of various physical, psychological, emotional, and even organizational factors that influence student nurses' learning and how they manage to handle the environment. In addition, the clinical placement environment has significant impact on nursing students' positive learning experience as well as students' well-being. Moreover, student nurses become accustomed with the actual situation of nursing profession and responsibilities of nurses in the field. On the other hand, the clinical placement learning environment come out as a cause for either withdraw from the program or pursuing the nursing profession determined by the experiences they encounter during clinical training. (Kalyani et al., 2019:1-2).

## 2.2 Student nurse learning in clinical placements

According to Saarikoski (2002:37), nursing care is a significant component in the clinical placements of nursing students. Clinical practice is considered the backbone and core of learning in nursing education. Correspondingly, the environment where the clinical placements transpire has an important role in converting student nurses into professionals and training them to perform as nurses. Student nurses should apply their learned knowledge and skills from the university into clinical placements to develop the necessary requirements for handling patients, and their achievements vary to the expanse of effective clinical practice. (Kalyani et al., 2019:1).

In the study of Saarikoski (2002:48), interpreted that any clinical setting is perceivable as scattered parts where various elements conjoin to produce a complex unit. These elements consist of internal and external factors like organizational imperatives. Inside the nursing team the important factors which create the ward culture are team spirit, nursing care philosophy and unit management. Furthermore, these given factors influence the ward culture in spite the viewpoint of the ward: context of nursing care, working, and learning environment. Besides, during clinical exposure when a student experiences a positive or negative team spirit the nursing student tendency to correlate the quality care assessment as good or as poor also.

## 2.3 Role of an Operating Room Nurse

Perioperative nurses are called as surgical nurses, OR nurses, and operating room nurses are also registered nurse or RN's who are assigned to work in hospital surgical units, day-surgery departments, ambulatory surgery centres and in clinics or doctors' clinics that perform invasive procedures. In addition to OR nurses job description they also perform duties



in pre-operative and post-operative areas, which their task is to assist in surgical plan, execute and assess treatment of surgical patients. (AORN 2023).

## 2.4 Nursing students' experiences in clinical practice

Nursing students' accountability for learning in clinical practice is significantly influenced by the behaviours of nurses. For this reason, students' ability to be sufficiently equipped for professional practice is also affected. Identifying behaviours that have an influence on nursing students' engaging to clinical practice can direct nurses in their technique in enabling student learning, specifically behaviours that will encourage accountability and autonomy across the range of nursing clinical education. (Perry et al., 2018).

In the study of Perry et al. (2018), behaviours develop with respect to four themes consists of: balancing clinical and educational requirements; empowerment and increasing student self-efficacy; belongingness associated with genuine partnership; and trust linked to increasing and staged independence.

## 2.5 Nursing students' perceptions of learning in a perioperative environment

Proven by research around the globe reveals that throughout nursing clinical practice, particularly during the start of clinical placement distributions student anxiety and stress levels are elevated. Recent literature emphasizes the significance of grooming student nurses for clinical practice but still it is not well defined in particular what knowledge students need in order to sufficiently prepare them. According to Hinton (2016), it was essential for student nurses to feel accepted and reinforced by the teaching process as a way to promote sense of belonging. In addition, the knowledge acquired in the university should be precise and applicable. To address this university instructors and clinical practice providers have a duty to work in unison for students to achieve optimal learning experience.

# 3 Purpose, aims and research questions

The purpose of this descriptive literature review is to describe student nurses' experiences during the time of clinical placements in perioperative nursing environment.

The aim was to provide new knowledge based on research for nursing clinical instructors to enhance clinical teaching methods in perioperative environment. The new knowledge can also

lead to provide quality learning and maximize learning potentials that will improve the experiences of nursing students in perioperative environment.

Study question formed as follows;

1. What kind of experiences nursing students have during clinical practices in perioperative environment?

## **4 Methodology and methods**

### **4.1 Descriptive literature review**

Qualitative research methods are utilized throughout the extensive scope of disciplines such as the management and nursing and social sciences and are commencing to be used more often in the traditional health sciences. Defining qualitative research is made more challenging since the deficiency of a common, unified set of techniques, philosophies, or underpinning perspectives. Qualitative research comprises flexibility and take into consideration the complexity, detail, and concept. Moreover, reflexivity or the critical self-reflection on the research process and analysis of data is an essential part of the qualitative researcher's toolkit. As a result, researchers of qualitative research wrote a field note and that they narrate what was seen, said, and done when engaging the research along with memos defining their interpretation or analysis of the implication connected with what they observe. Therefore, notes and memos usually become data. (Gerrish & Lathlean 2015). Thus, the core aim in using qualitative research is to explore, understand and describe human experiences also interpretation of data into generation of theory. (Holloway 2016.)

A literature review is an objective, detailed summary, and analytical analysis of the pertinent existing research and non-research literature on the subject matter that being studied. Additionally, its aim is to deliver most recent literature on a topic and make the basis for another aim for instance rationalization for further studies in the area. A reliable literature review accumulates information concerning a specific topic from various sources. It was properly written together with precise search and selection method. (Cronin & Ryan & Coughlan 2008).

In this study a descriptive literature review was used. To describe the learning experiences of student nurses in their clinical practices in perioperative environment. A descriptive literature review or narrative literature review evaluate and summarizes a body of literature and

obtain interpretation regarding the study question formed. Also, this type of review is suitable in obtaining and assembling numerous literatures in a particular subject field and summarizing and integrating it. The main purpose is to deliver an extensive background for comprehending recent knowledge and emphasizing the relevance of current research for the reader. (Cronin & Ryan & Coughlan 2008).

## 4.2 Data search and collection

Presently, searching literatures are carried out frequently through utilization of computers and databases. Computer databases in a specific field of specialization recommend extensive amount of information and that can be acquired effortlessly and immediately than searching manually. In this review, the nursing databases apply are Cumulative Index of Nursing and Allied Health Literature (CINAHL) which journals and articles are related to nursing and health related publications. On the other hand, Pubmed/ MEDLINE is a service of the National Library of Medicine and additional life science journals. (Cronin & Ryan & Coughlan 2008). The data used in this review were gathered from two main databases CINAHL and Pubmed/Medline. By exploring, assessing, and evaluating reliable published articles related to student nurses' experiences in perioperative area clinical placements.

To detail the search, the Boolean search technique was utilized. This technique aids precise and efficient searching. In addition, by using Boolean operators such as AND, OR, NOT, quotation marks" " and brackets () with precise words or key terms builds up a query expression that produces more relevant documents as well as limit the results in a less number. (Aliyu 2017). Moreover, facet analysis and PEO or population exposure and outcome was applied. The following key terms:" Student Nurse", " Nursing Students", " Perioperative", " Operating Room", " Learning", " Studying" and " Experience" were utilized to form search sentence. Currently, the search sentence that the authors used to find related articles is (student nurse\* OR nursing students) AND (perioperative\* OR operating room OR nursing theatre) AND (learning\* OR studying OR experience).

Table 1. PEO Framework

<b>Population</b>		<b>Experience/ Exposure</b>		<b>Outcome</b>
Student Nurses	<b>AND</b>	Perioperative environment	<b>AND</b>	Experience
<b>OR</b>		<b>OR</b>		<b>OR</b>
Nursing Students		Operating room		Learning
<b>OR</b>		<b>OR</b>		<b>OR</b>
Undergraduate student nurses		Operating theatre		Studying
<b>OR</b>				
Pre-registration nurse				

The Boolean technique was extracted from the PEO terms appeared in the facet analysis (Table 1). Immediately after searching and reading the scanned results, a total of 114 re-search articles were obtained. In the same way, the MESH technique was used in PubMed along with the utilization of full text, abstract and last ten years filter showed 336 hits or citations. As presented in the data search, the initial total number of related articles obtained from databases CINAHL and PubMed was 450. The data search table is displayed in (Table 1).

In the database search, the limiters utilized are the publication date of research resources from year 2013-2023 or resources published from the last ten years. Along with resources that are only available in full text. Regarding publishing date this implies that the data is up to date and reliability is ensured. Whereas full text as a limiter aids to provide more information as well as detailed descriptions of the entire study. With these limiters, the study will not be influenced with outdated resources and articles with incomplete data. The database search table presented (Table 2).

Table 2. Database Search

Database/ Date/ Limits	Search phrase	Total number of hits/citations	Papers/records included based on title	Papers/records included based on abstract	Papers/records included based on full text
Cinahl/ 22 <sup>nd</sup> of March 2023 Limits: available, 2013-2023	(student nurse* OR nursing students) AND (perioperative* OR operating room OR nursing theatre) AND (learning* OR studying OR experience)	114	48	27	12
PUBMED/ 22 <sup>nd</sup> of March 2023 Limits: Full text, Last ten years	(student nurse* OR nursing students) AND (perioperative nursing* OR operating room OR nursing theatre) AND (learning* OR studying OR experience)	336	47	20	13
Records in total		450	95	47	25
Total number of included studies	10				

The selected articles from databases were chosen based on the inclusion and exclusion criteria. Selection criteria consists of language, accessibility, publishing year, database, population, and relevance to the study. Considerations in inclusion criteria includes the type of language used which is in English language, articles in full texts, publishing year from 2013 to 2023 for up-to-date articles and specifically nursing students as the target group. Exclusion criteria were pointed out and identified.

Table 3. Inclusion and exclusion criteria

<b>Selection Criteria</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Language	English language research resources.	Non- English or any other language research resources.
Accessibility	Full text is available in databases.	Not available in full text in databases.
Year of publication	Studies published in the last ten years from years 2013 – 2023.	Studies published prior year 2013.
Database	Research resources from academic databases, peer reviewed sources. Primary studies.	Research resources from non-academic databases, non-peer reviewed sources. Literature review and non-primary studies
Population	Nursing Students/Student Nurses	Qualified Nurses/Registered Nurses
Relevance	Related to the study topic student nurses clinical practice experiences in perioperative settings and answer the study questions.	Unrelated to the study topic student nurses clinical practice experiences in perioperative settings and does not answer the study questions.

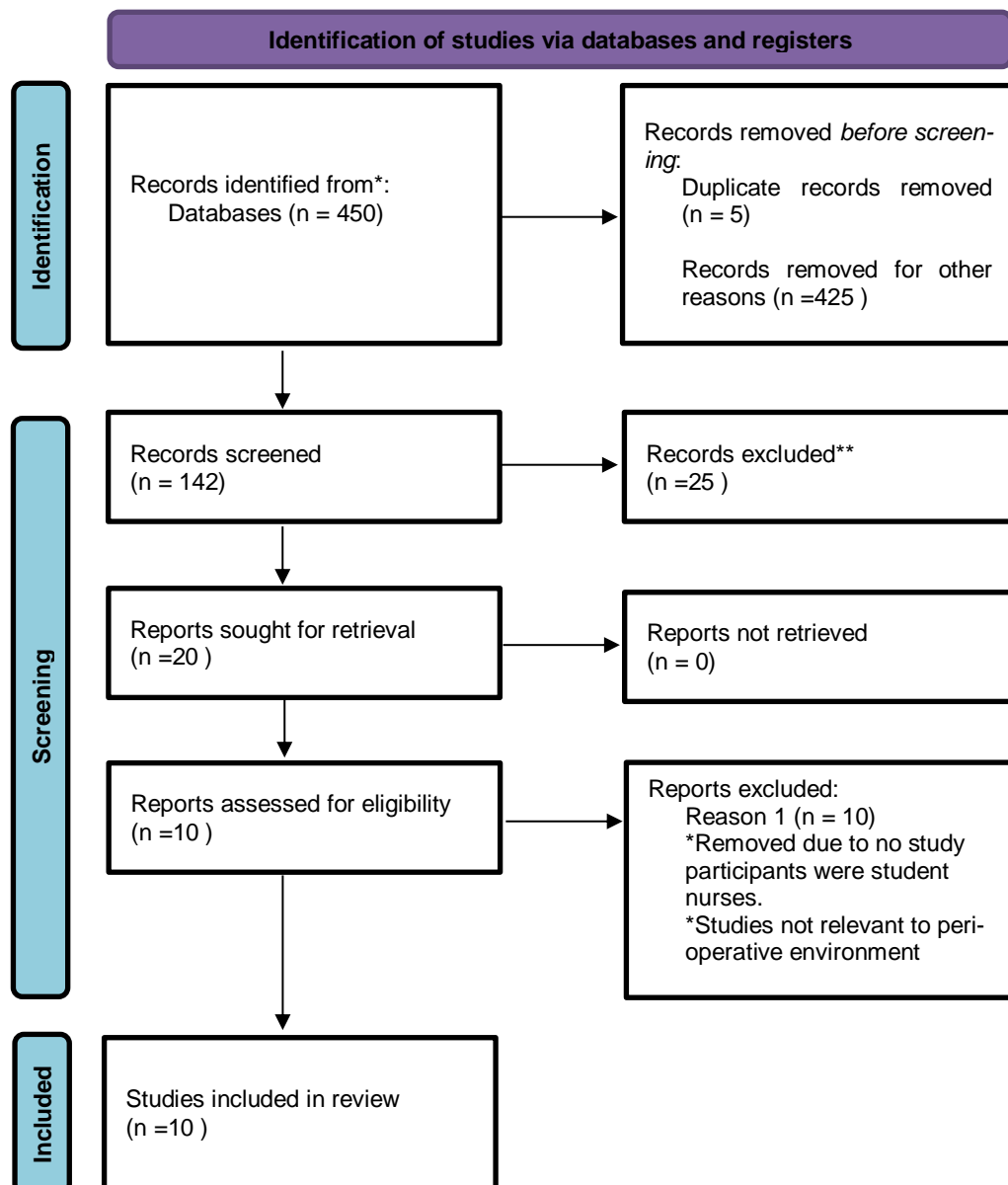
Selected articles were critically appraised using the Joanna Briggs Institute (JBI) critical appraisal checklist which assessed the trustworthiness, relevance, and results. Thus, it ensures the validity and reliability of the studies. In addition, JBI is a global organization that promotes and supports decisions that are evidence-based which improve health and health service delivery (JBI 2023). For this reason, it is one of the critical appraisal tools utilized by researchers to provide quality, reliable and efficient studies (Appendix, Table 10).

Moreover, Publication Forum or Julkaisuforum (JuFo) classification is also used in appraising articles. JuFo is a rating and classification system of scientific publication channels to support the quality assessment of academic research was created by the Finnish scientific community. It has three-level classification that evaluates 23 discipline-specific expert panels that rates the domestic publication and major foreign channels of all disciplines (University of Eastern Finland, 2023). JuFo evaluates quality classification of scientific publication channels based on bibliometric methods that can be complemented. Therefore, it is suitable for evaluation of publications of research institutes, disciplines, or countries, however, not for

evaluation of individual researchers. JuFo -levels of publications are used as one criteria in the funding model for universities by the Ministry of Culture and Education and is updated by the Federation of Finnish Learned Societies. (Oulun Yliopisto, 2023).

Another critical appraisal instrument that was utilized in this study was the Quality Improvement Minimum Quality Criteria Set (QI-MQCS) instrument. This instrument includes 16 expert-endorsed QI domains for QI related studies applicable to a wide range of QI studies. It is a ready-to-use, valid and reliable critical appraisal instrument applicable to healthcare QI intervention publications and is structured critical appraisal instrument development process ensured feasibility, validity, and reliability. (Hempel et al. 2015).

Figure 1. Prisma charts of data base results



### 4.3 Data analysis method

Content analysis method or data analysis is a method that can be utilized either qualitative or quantitative data in the same way in an inductive or deductive method. Qualitative content analysis is frequently applied in nursing research. Furthermore, using content analysis, the primary aim is to generate a model to describe the experiences in a conceptual form. Either inductive and deductive analysis are presented in three main phases: preparation, organizing and reporting. (Elo & Kyngäs 2008). However, in this review the inductive content analysis was utilized.

A general inductive content analysis approach for evaluation of qualitative data was utilized in this review to describe the student nurses learning experiences in clinical practices in a perioperative environment. The knowledge associated to the study topic we reviewed was fragmented. As a result, inductive data analysis was chosen. One of the primary purposes of inductive content analysis is to compress raw textual data turning into a brief synopsis design. Essentially, this approach produces a simply used and systematic set of processes for analysing data in a qualitative way that can generate a reliable and credible finding that can be utilize by the readers. (Thomas 2006).

The inductive content analysis comprises three main phases. The three phases' components are phase one open coding, phase two grouping, and lastly the phase three abstraction (Elo & Kyngäs 2008). Initially open coding was used to organise the data gathered which belongs to the phase one of analysis. In addition, selected articles were read meticulously and by highlighting/ underlining phrases and sentences that aid to answer the research question. These selected passages were assembled into a table as meaning units, from which codes were extracted. (Table 4).



Table 4. Phase one of inductive content analysis

Meaning Units	Codes
Almost all of the intern students stated that they mostly observed during the OR practice, the opportunities for practice were insufficient, and they needed more mentorship from OR nurses about information related to the surgical procedure, OR environment, and nursing care. . (Yavuz Van Giersbergen et al. 2016:148)	Mostly observed during OR practice
	Insufficient opportunity to practice
	Needed more mentorship from OR nurses
	Needed information related to surgical procedure
	Needed information related to OR environment
	Needed information related to nursing care

In the second phase of inductive content analysis codes were grouped. The aim of this grouping is to relate the data and to broaden the knowledge of the study topic by looking for similarities and differences to form categories. (Elo & Kyngäs 2008). The codes from phase one were assembled and grouped to develop sub-categories. Sub-categories were developed by grouping together similar codes that resemble identical ideas. (Table 5).

Table 5. Phase two of inductive content analysis

Codes	Sub-category
Performed pre-surgical interventions	Pre-operative interventions
Filled in check-in form	
Filled in safe surgery forms	
Checked in patients	
Checked out patients	
Learn to ensure readiness of OR	
Checking the preop checklist	
Ensuring everything is done prior OR	
Ensuring patient readiness for the procedure	
OR time outs	
Growth in knowledge for pre-op preparations	
Preoperative preparation	

Finally, abstraction the last phase of inductive content analysis. The sub-categories are merged to formulate generic categories. This developed by integrating the subcategories which represent the experiences of nursing students in clinical placements that produced the generic categories. The abstraction process continues and generated the main category. (Elo & Kyngäs 2008).

## **5 Results**

The purpose of this descriptive literature review was to describe student nurses' experiences during the time of clinical placements in perioperative nursing environment.

Collectively 10 articles were chosen for the literature review. The chosen articles were published in the middle years of 2013-2023. The chosen studies were materialized from five countries, six in the United States of America (Goliat et al. 2021) & (Foran 2015) & (Doerner & Swenty 2019) & (Yavuz van Giersbergen et al., 2016) & (Doerner & Seibert 2022) & (Schmid et al. 2016), and one study from each of the four succeeding countries, South Africa (Meyer et al. 2016), Cyprus (Dikmen & Bayraktar 2020), China (Shen et al., 2020), and Turkey (Taylan & Ozkan 2022). Regarding the research methodologies, utilized were seven qualitative studies, one quality improvement study, one quantitative cross-sectional study, and one mixed-methods design.

Table 6. Results of the descriptive literature

<b>Sub-category</b>	<b>Generic category</b>	<b>Main Category</b>
Patient care and management learning experiences	Experiences learning in OR clinical placement	Positive clinical placement experiences in perioperative environment
Comprehension of anatomy And physiology		
Sterile technique		
Pre-operative interventions	Patient care experiences in different stages of perioperative processes	
Intraoperative experience		
Post-operative care experiences		
Conducive learning environment	Significance of clinical practice and environment to students' experiences	
Application of theory to practice		
Importance of OR clinical practice		
Anticipation	Experience development in cognitive skills	
Critical thinking		
Patient education	Establishing rapport with patients and families	
Patient interaction		
Interaction with the relatives		
Excitement	Positive emotional experiences of students	
Enjoyment		
Interesting experience		
Amazing experience		
Long tenured OR nurses as job satisfaction	Career plans after clinical experience considering perioperative nurse as a career	
Considering OR as career choice		
Demand for OR nurses		
Positive interaction with doctors	Experience positive relationship with OR team	
Positive interaction with OR staff		
Sense of belonging to the team		
OR staff instructing students		
Teamwork and collaboration in perioperative environment		
Inadequate clinical exposure	Insufficient time of clinical placement	Negative clinical placement experiences in perioperative environment
Limited learning due to short duration of practice		
Eliminated OR in career choices	Career plans not considering OR nurse as a career after clinical experience	
Limited opportunity		
Boredom	Negative emotional experiences of students	
Feeling contempt		
Anxiety		
Fear		
Different emotions		
Lack of empathy	Experience negative relationship with OR team	
Negative experience from OR staff		
Negative interactions from doctors		
Disinterested staff	Absence of patient interaction	
Lack of patient contact		
Insufficient communication with patient	Lack of learning opportunities	
Limited opportunity to practice		
Lack of teaching		
Lack of learning activities		

## 5.1 Experiences learning in OR clinical Placements

Experiences learning in OR placements were determined as an experience of student nurses during their clinical placements in perioperative environment. This generic category comprises of three subcategories: patient care and management learning experiences, comprehension of anatomy and physiology, and sterile technique.

Perioperative environment allowed student nurses to do observations during their clinical placements that contributed to their learning experiences especially about asepsis which is an essential practice in the operating room. These experiences developed their theoretical knowledge that they recently acquired in lectures and applied it in actual perioperative environment practice (Dikmen & Bayraktar 2019:61). In addition, the OR environment also provided student nurses an opportunity to learn comprehensively regarding internal medicine, anatomy and physiology, and anesthesia (Foran 2015:257). Furthermore, clinical placements lead to give better comprehension and learning experiences about pain management, pharmacology, and doctor's order (Meyer et al. 2016:63).

## 5.2 Patient care experiences in different stages of perioperative processes

Patient care experiences in different stages of perioperative processes were determined as an experience of student nurses during their clinical placements in perioperative environment. This generic category comprises of three subcategories: pre-operative interventions, intraoperative experiences, and post-operative care experiences.

A study from the literature review found that student nurses experiences perioperative processes and care of surgical patients within the perioperative environment. Correspondingly, they also experienced how to prepare patients in the preoperative phase performing pre-operative interventions, intraoperative phase handling patients undergoing surgical procedures. Furthermore, student nurses experienced registered nurse role to provide support regarding quality and safety in perioperative environments (Doerner & Seibert 2022:530). Besides, student nurses experienced providing care to postoperative patients that increased their confidence level and gaining more knowledge (Goliat et al. 2021:366).

### 5.3 Significance of clinical practice and environment to students' experiences

Significance of clinical practice and environment to students' experiences were determined as an experience of student nurses during their clinical placements in perioperative environment. This generic category comprises of three subcategories: conducive learning environment, application of theory to practice, and importance of OR clinical practice.

The perioperative environment produced an environment for students to have conducive to meaningful clinical learning during clinical placements (Meyer et al. 2016:62). In addition, it provides opportunity to apply their theoretical knowledge into actual practice in the OR. Observing actual surgeries in the perioperative environment helped student nurses correlates lectures learned into actual practice. This also leads to assimilate better the learned theory when experiencing it in a real environment (Dikmen & Bayraktar 2019:61). It was also found out that experiences of student nurses in a perioperative environment had a huge impact on their development as a nurse (Schmidt et al. 2016:58).

### 5.4 Experience development in cognitive skills

Experience development in cognitive skills were determined as an experience of student nurses during their clinical placements in perioperative environment. This generic category comprises of two subcategories: anticipation and critical thinking.

Student nurses were able to experience anticipation by preparing and planning ahead for any possible circumstances during a surgery. Moreover, overall anticipation of and for the whole surgical team such as anesthesia, surgeon, nurse, and surgical tech exhibited the growth in the aspect of student nurses' decision-making ability (Doerner & Swenty 2019:197). PACU experiences of student nurses provided nurses a good example of prioritization and critical thinking (Goliat et al. 2021:366). Furthermore, understanding what is essential to the patient and in the surgical procedure, for instances, laboratories, drains and history contributed to understanding critical thinking (Doerner & Swenty 2019:197).

### 5.5 Establishing rapport with patients and families

Establishing rapport with patients and families was determined as an experience of student nurses during their clinical placements in perioperative environment. This generic category

comprises of three subcategories: patient education, patient interaction, and interaction with relatives.

Knowing the patient case and knowledge regarding the perioperative processes regarding the surgical procedure and patient progress from pre-operative up to post-operative phase. This understanding increased the capability of student nurses to provide health education to patients and relatives (Doerner & Seibert 2022:531). Similarly, providing thorough health education and application of effective communication skills can be attained if there is an augmented empathy towards the experience of patients during their perioperative clinical placements (Doerner & Seibert 2022:531). This can be achieved by interacting with both the patient as well as the staff during the procedure (Foran 2015:258). Student nurses appreciated the importance of communication with the patient and family prior surgical procedure (Goliat et al. 2021:366).

## 5.6 Positive emotional experiences of students

Positive emotional experiences of students were identified as a factor that causes positive clinical placement experience of a student nurse in the perioperative environment. This category includes four subcategories: excitement, enjoyment, amazing and interesting experience.

Being clueless regarding the perioperative environment and able to see the environment for the first time during their first perioperative clinical placement has brought excitement for student nurses (Dikmen & Bayraktar 2019:61). Indeed, a feeling of enjoyment experienced due to learning opportunities that the perioperative environment can provide (Foran 2015:257), that leads to an amazing theatre experience (Meyer et al. 2016:63). Then, interesting experience arose after comparing the difference of perioperative environment from ward nursing (Foran 2015:257).

## 5.7 Career plans after clinical experience considering perioperative nurse as a career

Career plans after clinical experience considering perioperative nurse as a career was identified as a factor that causes positive clinical placement experience of a student nurse in the perioperative environment. This category includes three subcategories: long tenured OR nurses as job satisfaction, considering OR as career choice and demand for OR nurses.

Perioperative clinical placements of student nurses affect their career plans. Owing to clinical placements in perioperative environment student nurses observed that perioperative staff nurses remained in the same area and performing the same role for a long period of time. Which was acknowledged as being similar with satisfaction with their job (Schmidt et al. 2016:59). During their clinical placements students realized the demand for perioperative nurses due to shortage of nurses. This serves as an eye opener to perioperative nursing as a career (Schmidt et al. 2016:58). As a result of positive experiences, student nurses considered OR as career choice after graduation (Taylan & Özkan 2022:66).

## 5.8 Experience positive relationship with OR team

Experience positive relationship with OR team was identified as a factor that causes positive clinical placement experience of a student nurse in the perioperative environment. This category includes five subcategories: positive interaction with doctors, positive interaction with OR staff, sense of belonging to the team, OR staff instructing students, and teamwork and collaboration in perioperative environment.

Interpersonal factors are essential in perioperative environment this acted as enablers to learning in clinical placements which can also affects student nurses' perception. Besides, displays of teamwork also enabled learning (Meyer et al. 2016:62). According to the study of Doerner & Seibert (2022:530) teamwork and collaboration is the most important thing that student nurses learned in the perioperative environment. It can be seen during surgical procedures, student nurses experienced assisting doctors and this experience leads to a positive interaction with doctors (Meyer et al. 2016:63). Furthermore, in the study of Meyer et al. (2016:63) revealed that student nurses also experience positive interpersonal interaction with operating room staffs. Indeed, nurses and doctors also were very determined to educate student nurses (Foran 2015:258). As a result of positive relationship with OR team, student nurses felt being part of the team (Doerner & Swenty 2019:198).

## 5.9 Insufficient time of clinical placement

Insufficient time of clinical placement was identified as a factor that causes negative clinical placement experience of a student nurse in the perioperative environment. This category includes two subcategories: inadequate clinical exposure and limited learning due to short duration of practice.

After the clinical practice, students expressed their disappointment with the length of time that they had been training in the OR. Because of this, students were not able to practice their skills and do not often get an adequate understanding of their role as a perioperative nurse. (Yavuz et al., 2016:159-150). Furthermore, due to insufficient time of practice in the area, students think that their learning was limited, and it would be more effective if they had more practice time in the OR. (Dikmen & Bayraktar 2021:62-63). In addition, insufficient time in practice and lack of staff or resources were reported to cause negative experiences on student nurses (Goliat et al., 2021:366) and can lead to deterioration of surgical nursing skills (Taylan & Ozkan, 2022:66-67).

### 5.10 Career plans not considering OR nurse as a career after clinical experience

Career plans not considering OR nurse as a career after clinical experience was identified as a factor that causes negative clinical placement experience of a student nurse in the perioperative environment. This category includes two subcategories: eliminated OR in career choices and limited opportunity.

It was found that negative experiences in the clinical practice had led the students to eliminate OR as a career choice because they felt unqualified in the field (Dikmen & Bayraktar 2021:62). Furthermore, the realization of being in an area where everyone has a major responsibility with no margin of error and being responsible for a patient's life cannot even cross their mind to be a part of it. Therefore, they decided not to venture into the field. (Yavuz et al., 2016:149-150).

Moreover, considering the fact that student nurses have little or no exposure to the field, entering the perioperative environment is really challenging thus limiting opportunities. However, students can take advantage from the development of immersions and academic-practice partnerships in sustaining specialty areas of nursing. (Goliat et al., 2021:364-365).

### 5.11 Negative emotional experiences of students

Negative emotional experiences of students were identified as one of the contributing factors of student nurses' experiences during the time of clinical placements in perioperative nursing environment. Under this generic category includes six subcategories: boredom, feeling contempt, anxiety, fear, different emotions, and lack of empathy.



OR is a challenging and dynamic environment which stresses students (Taylan & Ozkan, 2022:63). In relation to this, students reported to experience fear and anxiety during the OR practice because of the new environment and perception of inflicting pain to patients. (Dikmen & Bayraktar 2021:61-62). Moreover, students stated that they felt mixed emotions due to being connected to the unknown and feeling that patients were not emotionally supported in the operating room. Because patients are helpless in the OR and healthcare professionals just care about finishing the operation. (Taylan & Ozkan, 2022:66-67). In addition, students felt bored and expressed the lack of meaningful experiences that contribute to their learning (Meyer et al., 2016:63).

Students were constantly feeling contempt in the OR for being denied learning opportunities and unfairly criticized, to name a few. This resulted in increased levels of anxiety which affected all the aspects of the students' educational experience. (Shen et al., 2020: 3-4).

### 5.12 Experience negative relationship with OR team

Experience negative relationship with OR team was identified as one of the contributing factor of student nurses' experiences during the time of clinical placements in perioperative nursing environment. Under this generic category includes three subcategories: negative experience from OR staff, negative interactions from doctors, and disinterested staff.

Students were not able to enjoy their experiences because of instances of non-guided experience (Foran 2015:257). In addition, interpersonal factors such as rude and not open-minded doctors together with staff constrained the learning of students which in turn negatively influenced how they perceive the area (Meyer et al., 2016:63).

Furthermore, negative experiences during the practice which includes incivility which shockingly due to OR staff members negatively impacted nursing students and their learning environment. Because of this, students were not able to acquire knowledge and skills that are essential for their professional development. (Shen et al., 2020:4-5).

### 5.13 Absence of patient interaction

Absence of patient interaction was identified as one of the contributing factor of student nurses' experiences during the time of clinical placements in perioperative nursing environment. Under this generic category includes two subcategories: lack of patient contact and insufficient communication with patient.

Some of the students reported that they are interested in working as an OR nurse. However, they realized that there was no patient interaction most of the time because the patient is just lying down in the OR table defenseless, and they were not able to make contact with them. (Dikmen & Bayraktar 2021:62-63).

#### 5.14 Lack of learning opportunities

Lack of learning opportunities was identified as one of the contributing factors of student nurses' experiences during the time of clinical placements in perioperative nursing environment. Under this generic category includes three subcategories: limited opportunity to practice, lack of teaching, and lack of learning activities.

Although students were intrigued to enter perioperative nursing, some hospitals no longer accept unprepared students limiting their opportunity to clinical practice. This is because they fear that unprepared students may cause possible harm to patients and any consequences of related incidents if this happens. In addition, some students only had observational experience because of the lack of time and personnel to individually teach each of the students (Foran 2015:258). Furthermore, students were not given the chance to engage in perioperative procedures and was not given proper guidance which affected the quality of nursing and professional development of students (Meyer et al., 2016:64).

## 6 Discussion

### 6.1 Main Results

The purpose of this descriptive literature review was to describe student nurses' experiences during the time of clinical placements in perioperative nursing environment.

According to the literature review main results, there are negative and positive clinical placement experiences in the perioperative environment. Positive clinical placement experiences have eight generic categories wherein experiencing positive relationship with OR team having the most subcategory with six scores whilst experienced development in cognitive skills only have two sub-categories. While negative clinical placement experiences have six generic categories. Wherein six sub-categories are under negative emotional experience and two sub-categories from insufficient time of clinical placement, absence of patient interaction, and career plans not considering OR nurse as a career after clinical practice.

The clinical environment is where knowledge and skills are integrated and applied. This is very critical in contributing to the student performance in healthcare and to the developmental capacity of professional nursing identity. (Perry et al., 2018:177). Preparing students for the reality of OR and helping them to function on a novice level through clinical placements, showed that students were able to develop skills and use critical thinking in the OR environment (Helzer & Monahan 2016:90-91). The clinical practice resulted in positive and negative experiences that affected the student's professional and personal development (Kalyani et al. 2019:7).

In the study of Kalyani et al. (2019:1) identified that several physical, emotional and even psychological factors combined is what clinical learning environment is. Which in turn affects the learning and emotional well-being of student nurses. Furthermore, student nurses are confronted with lots of challenges which expose them to negative emotions such as anxiety, fear and confusion. (Kalyani et al. 2019:1). From this review, aspects of negative emotion which were anxiety and fear does really affect the learning capabilities of student nurses in all point views including their perspectives in choosing careers.

Positive experiences during clinical practice greatly affected the capacity and motivation for clinical learning of students. In addition, this experience empowers, enhances, and promotes the student's clinical learning efficiency. Furthermore, these positive experiences are critical factors in the student's decision making in assuming responsibility and independence in the clinical practice in providing patient care. (Perry et al., 2018:184-185). Student's positive experience claimed developed critical thinking skills and effective communication which are fundamental in professional accountability and quality of nursing care (Helzer & Monahan 2016:91). Student's positive experience claimed to have developed critical thinking skills and effective communication which are fundamental in professional accountability and quality of nursing care (Helzer & Monahan 2016:91). It is, therefore, essential for a student nurse to have positive experience in clinical practice. For further research, it would be useful to find ways to have more positive experiences in clinical practice.

## 6.2 Ethics and validity

This study is a descriptive review that focused on the experiences of nursing students in the perioperative setting. Researchers were able to meticulously chose literatures which are articles and journals based on criteria such as peer reviewed and data search selection in relation to the topic. Authors of the articles were all working if not experts in the field of study.

Authors with different experiences in nursing field as well as clinically experienced in perioperative environment increased the credibility of the study. Permissions were no longer needed in conducting this review. To minimize bias in this review, search strategies were developed by using methods such as key words, subject headings, and thorough consultation of the informatics to ensure a comprehensive data from the chosen databases to serve as basis. All sources from this review have been written accordingly and acknowledged in text and can be found in the reference list. This review was reported based on Metropolia guidelines.

Academic research conducted in Finland is guided by The Responsible Conduct of Research Guidelines issued by Finnish National Board on Research Integrity TENK. Processing of personal data of participants is often required in research including human participants. Human participants regarding research needs to have the participant's trust in research and science as a fundamental starting point. Processing research with data which contains personal data must contain central principles that are planned, responsible and in accordance with the law. Considering appropriately the risks that are associated with the research participant's data process is crucial in planning. (Finnish National Board on Integrity TENK 2019).

Validity and reliability are in-depth in terms of trustworthiness especially from the qualitative research perspective. Validity refers to the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account. As a summary, to require researchers to demonstrate that what they do is fit for their research purpose is the qualitative response for reliability and validity. Reliability is oftentimes attributed to as dependability, confirmability, or consistency in regard to qualitative analysis. (Coleman 2021).

### 6.3 Recommendations

The findings from this literature review suggest that students have negative and positive clinical placement experiences during the time of clinical placements in perioperative nursing environment. Positive experiences have covered more categories compared to the negative experiences. However, we believe that student nurses need more learning and experiences than these results because those things will be the pillar to mold their professional development for their future careers.

A further recommendation from this literature review is to research how clinical instructors and OR team can avoid negative experiences of student nurses during clinical placements in

the perioperative environment. This is important for student nurses to be encouraged to pursue this field and produce more confident and skillful nurses for the future. Therefore, this is a suggestion for further research, to promote safer and valuable clinical placements in the perioperative environment.

For further research, it would also be useful to investigate and identify ways on how nursing students will have more positive experiences in the clinical practice by the help of collaboration between educational institution and clinical placement personnels.

## **7 Conclusions**

This descriptive literature review's purpose was to describe student nurses' experiences during the time of clinical placements in perioperative nursing environment. The student nurses' experiences, based on the results was student nurses' experiences both the positive and negative clinical placement experiences in perioperative nursing environment. The positive clinical placement experiences in perioperative environment included eight subcategories including experiences learning in OR clinical placement, patient care experiences in different stages of perioperative processes, significance of clinical practice and environment to students' experiences, experience development in cognitive skills, establishing rapport with patients and families, positive emotional experiences of students, career plans after clinical experience considering perioperative nurse as a career, and experience positive relationship with OR team. Additionally, negative experiences included six subcategories including insufficient time of clinical placement, career plans not considering OR nurse as a career after clinical experience, negative emotional experiences of students, experience negative relationship with OR team, absence of patient interaction, and lack of learning opportunities. To conclude, student nurses' experiences both positive and negative experiences and most of the student nurses' experiences positive clinical placement experiences during clinical placements in a perioperative environment.

Recommendations for further research includes investigating and identifying ways on how nursing students will have more positive experiences in the clinical practice by the help of collaboration between educational institution and clinical placement personnels. It would also be useful to formulate new clinical teaching strategies base on research results that can be utilized by clinical educators. Owing to evidence base research findings, this can assist in the development of effective perioperative experiences for nursing students and enhance learning experiences.

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## 9 Appendix

Table 7. Data Search

Database/ Date/ Limits	Search phrase	Total number of hits/ citations	Papers/records included based on title	Papers/records included based on abstract	Papers/records included based on full text
Cinahl/ 22 <sup>nd</sup> of March 2023 Limits: available, 2013-2023	(student nurse* OR nursing students) AND (perioperative* OR operating room OR nursing theatre) AND (learning* OR studying OR experience)	114	48	27	12
PUBMED/ 22 <sup>nd</sup> of March 2023 Limits: Full text, Last ten years	(student nurse* OR nursing students) AND (perioperative nursing* OR operating room OR nursing theatre) AND (learning* OR studying OR experience)	336	47	20	13
Records in total		450	95	47	25
Total number of included studies	10				

Appendix 2  
Inclusion and exclusion criteria

Table 8. Inclusion and exclusion criteria

<b>Selection Criteria</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
Language	English language research resources.	Non- English or any other language research resources.
Accessibility	Full text is available in databases.	Not available in full text in databases.
Year of publication	Studies published in the last ten years from years 2013 – 2023.	Studies published prior year 2013.
Database	Research resources from academic databases, peer reviewed sources. Primary studies.	Research resources from non-academic databases, non-peer reviewed sources. Literature review and non-primary studies
Population	Nursing Students/Student Nurses	Qualified Nurses/Registered Nurses
Relevance	Related to the topic and answer the study questions.	Unrelated to the topic and does not answer the study questions.

Appendix 3  
Articles included in the review

Table 9. Articles included in the review

Author/s, Year, Country	Topic/aim	Methodology & methods	Participants/ sample	Main outcomes	JBI/ JUFO
1. <b>Foran 2015 USA</b>	Effects of Guided Undergraduate Perioperative Education on Recruiting Novice RNs and Retaining Experienced RNs  This study describes undergraduate nurses' perceptions of their perioperative placement experiences.	Qualitative  Telephone survey, qualitative questionnaire, and plain language statement	Undergraduate nursing students in their final year. n=332	The study shows that preparation prior clinical practice and guidance of staff members during clinical placements affects nursing student's experiences.  In terms of enjoyment of the OR experience in both guided and non-guided cohort students' qualitative comments revealed positive and negative feedback in their practical experience.	<b>JBI Critical Appraisal Checklist for Qualitative studies:</b> *Yes  JUFO AORN Journal: Level 1
2. <b>Meyer et al. 2016 South Africa</b>	The operating room as a clinical learning environment: An exploratory study  The aim of this study was to determine nursing students' perceptions of the operating room as a clinical environment.	Qualitative  Survey in the form of a questionnaire, containing open-ended questions and focus group discussion	Fourth-year bridging course nursing students who had exposure to the operating room. n= 22	The operating room provided an environment conducive to meaningful clinical learning. However, despite the potential learning opportunities, the key findings of this study reveal negative perceptions of nursing students regarding learning experiences in the operating room.  Two experienced emerged: positive (enablers) negative (constraints).	JBI Critical Appraisal Checklist for Qualitative studies: *Yes  JUFO Nurse Education in Practice: Level 1
3. <b>Yavuz van Giersbergen et al. 2016 USA</b>	The Operating Room Experiences of Nursing Students: A Focus Group Study  The purpose of the study was to evaluate operating room (OR) experiences of student nurses.	Qualitative  Focus group interview	Fourth-year intern students n= 26	The students stated that the period of OR practice was insufficient, the opportunities for being able to implement were limited, they mostly observed, and they experienced feelings of being alone and fear in the OR. Despite all of these, the students stated that the OR practice provided a major contribution to their education and was effective in the determination of their career preferences after graduation.	JBI Critical Appraisal Checklist for Qualitative studies: *Yes

### Appendix 3

#### Articles included in the review

				From the student's opinion, "information," "determination of career preference," "period of internship and/or rotation," and "fear and/or anxiety" were important factors in this clinical experience.	JUFO Journal of PeriAnesthesia Nursing: Level 1
<b>4. Schmidt et al. 2016 USA</b>	<p>Student Perceptions about the Influence of a Perioperative Nursing Elective on Career Preferences</p> <p>The purpose of this qualitative study was to describe perceptions of perioperative nursing as a career option following completion of an elective course in perioperative nursing with a clinical preceptorship.</p>	<p>Qualitative</p> <p>Semi-structured interview</p>	Junior and senior nursing students n=19	<p>Students acknowledged the impact their experiences in perioperative elective clinical practices had on their development as nurses.</p> <p>Students were able to comprehend the whole process of surgery and generalize to new situations.</p> <p>Students' perceptions of being confined. Lack of break time, due to long surgeries or changes in the surgical schedule also contributed to their sense of being captive.</p>	<p>JBI Critical Appraisal Checklist for Qualitative studies: *Yes</p> <p>JUFO International Journal of Nursing Education Scholarship: Level 1</p>
<b>5. Doerner &amp; Swenty 2019 USA</b>	<p>The Effect of a Perioperative Clinical Immersion on Senior Nursing Students' Perception of Readiness to Practice: A Quality Improvement Project</p> <p>The purpose of this quality improvement project was to evaluate the effect of a perioperative clinical immersion on the perceptions of readiness for practice held by senior students working toward a Bachelor of Science in Nursing.</p>	Quality improvement	Senior nursing students n=7	<p>The study found that a perioperative clinical immersion provides senior nursing students with an opportunity for professional growth.</p> <p>Students perceived an increased growth in critical thinking, skill competency, and role socialization, and felt more equipped to function in the perioperative environment.</p>	<p>QI-MQCS Critical appraisal: *** Yes</p> <p>JUFO AORN Journal: Level 1</p>
<b>6. Dikmen &amp; Bayraktar 2020 Cyprus</b>	Nursing Students' Experiences Related to Operating Room Practice: A Qualitative Study	<p>Qualitative</p> <p>In-depth semi structured interviews</p>	Second-year nursing students n= 18	The study emerged three main themes about student nurses' experiences in the perioperative environment namely, "OR environment", "emotions" and career plans after graduation", which signify and significant in their clinical practice placement.	<p>JBI Critical Appraisal Checklist for Qualitative research: *Yes</p> <p>JUFO</p>

### Appendix 3

#### Articles included in the review

	The aim of this study was to Investigate the experiences of nursing students concerning OR practice to understand deeply their feelings, opinions, and barriers.				Journal of PeriAnesthesia Nursing: Level 1
<b>7. Shen et al. 2020 China</b>	<p>Incivility in nursing practice education in the operating room</p> <p>The purpose of this study was to investigate incivility toward nursing students during clinical education in the operation room.</p>	<p>Quantitative Cross-sectional</p> <p>Questionnaire uncivil behavior in clinical nursing education (UBCNE) tool</p>	Second, third, fourth year nursing students n= 215	<p>Uncivil behavior toward nursing students in clinical education is a serious problem, which has a negative effect on nursing students in all aspects of their educational experience.</p> <p>The incivility mean score was (4.6 ± 6.7). In all, 122 (56.7%) participants had experienced various degrees of uncivilized behavior in the operating room. There were significant differences in incivility toward students according to degree of education and age.</p> <p>The most frequent uncivilized behavior toward students was raising of the voice when speaking to students (41.9%), followed by inappropriate tone (36.7%), being embarrassed in front of others (36.3%), and snide remarks (34.4%). Surgeons (59%) were considered as the most important source of uncivil behaviors, followed by staff nurses (46.7%).</p>	<p>JBI Critical appraisal for Analytical Cross-sectional Studies: **Yes</p> <p>JUFO Nurse Education Today: Level 2</p>
<b>8. Goliat et al. 2021 USA</b>	<p>Partnerships, Succession, and Student Engagement: A Perioperative Immersion Program</p> <p>The objective of perioperative immersion was to provide an overall introduction to the perioperative environment while increasing student knowledge and awareness of this specialty</p>	<p>Qualitative</p> <p>Post survey questions</p>	Second-year nursing students n= 30	Students commonly reported gaining knowledge and increased confidence levels in providing care to postoperative patients on surgical units because of the immersion experience. They highly valued their nurse preceptors and felt strongly that their preceptors helped them begin “thinking” like nurses. Furthermore, many students visualized themselves practicing someday in the perioperative setting.	<p>JBI Critical Appraisal Checklist for Qualitative research: *Yes</p> <p>JUFO Journal of Radiology Nursing: Level 1</p>
<b>9. Taylan &amp; Özkan 2022 Turkey</b>	"I Felt Alienated in the Operating Room": A Phenomenological Qualitative Study	<p>Qualitative</p> <p>Semi structured interview</p>	Second year nursing students. n= 9	The study results produced two themes namely (1) short and difficult experience and (2) very important for professional socialization which reflected the student nurses' clinical placement experiences in the perioperative environment.	<p>JBI Critical Appraisal Checklist for Qualitative Research: *Yes</p> <p>JUFO</p>

### Appendix 3

#### Articles included in the review

	This study aimed to investigate the clinical practice experiences of nursing students in the operating room and to evaluate these experiences in terms of professional socialization				Journal of PeriAnesthesia Nursing: Level 1
<b>10. Doerner &amp; Seibert 2022 USA</b>	<p>Student Perioperative Experience Supports Recognition of Safety Concepts</p> <p>This study aimed to evaluate student perception of knowledge gained and intent to apply perioperative safety concepts.</p>	<p>Mixed method</p> <p>Post-experience survey</p>	Student nurses n= 99	Four themes emerged as student perceived importance: communication, teamwork, emphasis of patient safety, and roles of RNs in the perioperative environment.	<p>JBI Critical Appraisal Checklist for Analytical Cross-sectional studies: **Yes</p> <p>JUFO Journal of Peri-Anesthesia Nursing: Level 1</p>
<p><b>JBI Critical appraisal:</b></p> <p>* <b>Qualitative study:</b> Is there congruity between the research methodology and the interpretation of results?</p> <p>** <b>Analytical cross-sectional studies:</b> Were the study subjects and the setting described in detail?</p> <p><b>QI-MQCS Critical appraisal:</b></p> <p>***<b>Quality Improvement:</b></p> <p>Intervention rationale: Rationale linking the intervention to its expected effects</p> <p>Implementation: Temporary activities used to introduce potentially enduring changes</p>					